and Bezúkie ; I found it also on the mountain Watargan near Puger, on the south coast of the division of Bondowosso. The flower was brought to me from Jengawar in the same division. All these places lie in the lime formation, and I consider that the *Rafflesia* is an exanthem of the roots of *Cissus scariosa*, Bl., and may occur wherever its mother-plant grows. It is still uncertain whether my specimens belong to the species which Blume found on Nusa Kambangan. Blume's specimens must have been larger. The largest I possess do not attain so much as a foot in diameter, and mostly only $\frac{1}{2}$–$\frac{3}{5}$ f. This plant probably occurs also on Nusa Baron, and, it is likely, along the lime hills which nearly surround the whole south coast of Java. I have often seen on one root of *Cissus scariosa* three or more Rafflesia. It does not occur on the sand of the coast, as many believe and assert, but mostly in the ravines and humid hollows of the lime rocks. The Javanese of Eastern Java name this flower *Pidh mo*, or *Pidehmó*. It is scarcely possible to conceive what idolatrous notions are entertained concerning the flower by this people. An ordinary man would not be able to find it until after he has fasted and prayed or been sanctified when he goes to search for it. The flower is prepared with other articles as a medicine which is used after delivery by women, in order completely to purify the matrix. It is also amongst the most reputed aphrodisiacs of the Javanese, although only for women of the higher classes. Common women would be taken sick were they to use this medicine. It is further said, that if a woman of the people has recourse to it, and afterwards going out on foot treads on some dirty place, she will ever after forfeit the inclination of all men. The Javanese reckon the *Rafflesia* properly amongst the fungi, an opinion which is partly received in science ; at least in so far, that we have placed the plant in the natural system as a link between the sponges and the higher plants.—*From the Journal of the Indian Archipelago and Eastern Asia for Aug.* 1847.

On the Gamboge of the Tenasserim Provinces.

By the Rev. F. Mason, A.M.

In conversation with a distinguished medical officer, and member of the Asiatic Society, I found that he was not at all aware that the Tenasserim Provinces produce Gamboge. It has therefore occurred to me that a brief notice of the Gamboge of these provinces might not be unacceptable to the readers of the Journal, and would contribute its influence to draw attention to a most interesting portion of the British provinces in the East ; one that is exceeded by few in the richness and variety of its natural productions.

Three works in my possession describe Gamboge each as the product of a different tree ; a fourth represents all to be wrong, and a fifth suggests a different plant still. One refers it to *Cambogia gutta*, a plant which, as described by Linnæus, has probably no existence. He described a Ceylon plant ; and it is now quite evident, says Dr. Wight, " that the character of the flower and ovary is taken from one specimen, and that of the fruit from a different one, owing to

and Bezúkie ; I found it also on the mountain Watargan near Puger, on the south coast of the division of Bondowosso. The flower was brought to me from Jengawar in the same division. All these places lie in the lime formation, and I consider that the *Rafflesia* is an exanthem of the roots of *Cissus scariosa*, Bl., and may occur wherever its mother-plant grows. It is still uncertain whether my specimens belong to the species which Blume found on Nusa Kambangan. Blume's specimens must have been larger. The largest I possess do not attain so much as a foot in diameter, and mostly only $\frac{1}{2}$–$\frac{3}{5}$ f. This plant probably occurs also on Nusa Baron, and, it is likely, along the lime hills which nearly surround the whole south coast of Java. I have often seen on one root of *Cissus scariosa* three or more Rafflesia. It does not occur on the sand of the coast, as many believe and assert, but mostly in the ravines and humid hollows of the lime rocks. The Javanese of Eastern Java name this flower *Pidh mo*, or *Pidehmó*. It is scarcely possible to conceive what idolatrous notions are entertained concerning the flower by this people. An ordinary man would not be able to find it until after he has fasted and prayed or been sanctified when he goes to search for it. The flower is prepared with other articles as a medicine which is used after delivery by women, in order completely to purify the matrix. It is also amongst the most reputed aphrodisiacs of the Javanese, although only for women of the higher classes. Common women would be taken sick were they to use this medicine. It is further said, that if a woman of the people has recourse to it, and afterwards going out on foot treads on some dirty place, she will ever after forfeit the inclination of all men. The Javanese reckon the *Rafflesia* properly amongst the fungi, an opinion which is partly received in science ; at least in so far, that we have placed the plant in the natural system as a link between the sponges and the higher plants.—*From the Journal of the Indian Archipelago and Eastern Asia for Aug.* 1847.

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the imperfection of his specimens, and his not being aware that the lobes of the stigma afford a sure indication of the number of cells of the fruit."

Another refers it to *Garcinia cambogia*, but Dr. Wight says that the exudation of this tree is "wholly incapable of forming an emulsion with the wet finger," a statement which the writer knows to be correct. The tree is very common in the Tenasserim Provinces, but the bright yellow exudation it produces is certainly not gamboge.

A third refers it to *Stalagmitis cambogioides*, but Dr. Wight remarks, "The juice of this tree differs so very widely in its qualities from good gamboge, that it can never be expected to prove valuable as a pigment."

Dr. Graham has described a Ceylon tree under the name of *Hebradendron cambogioides*, which is said to produce good gamboge; but no gamboge has ever been exported into the English market from Ceylon. Thus it would appear, to use the language of Dr. Wight, that "the tree, or trees, which produce the gamboge of commerce is not yet known."

Dr. Helfer, who was employed by Government as a scientific naturalist, in these provinces, at an expense of *thirteen hundred* rupees per month, reported, "The gamboge of this country dissolves very little with water, and consequently does not yield that yellow emulsion as the common *guttifera*. It will never serve as a colour, but promises to give a very beautiful varnish." This statement was controverted by a writer in our local periodical at the time, who said he had obtained "fine gamboge of the very best description" from our jungles; in which he was no doubt correct, but he erred when he added that it came from the "true *Stalagmitis cambogioides*." A very small amount of botany would have served to preserve him from falling into this error; for that plant has a quinary arrangement of its flowers, while the arrangement of the flowers in those that produce gamboge in these provinces is quaternary.

The hills that bound the valley of the Tavoy river, on both sides, from their bases to their summits, abound with a tree which produces a fine gamboge. It is Roxburgh's *Garcinia pictoria*, which he knew produced gamboge, but which he said was liable to fade. As soon as I satisfied myself of the identity of the trees by an examination of the inflorescence of our plant compared with Roxburgh's description, I coloured a piece of paper, one band with this gamboge, and another with the gamboge of commerce; and subsequently exposed both to the weather equally for more than twelve months, but without being able to discover that one faded any more than the other. South of the latitude of the mouth of Tavoy river, and throughout the province of Mergui, there is found on the low plains at the foot of the hills, and on the banks of the rivers, almost down to tide waters, another species of *Garcinia* that also produces good gamboge. I have no doubt but it is the tree from which Dr. Griffiths furnished Dr. Wight with specimens, and which the latter says, "I refer doubtfully to Wallich's *G. elliptica*." We will call it then *G. elliptica*, a species which Dr. Wight has on his list of "species imperfectly known."

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The foliation and female flowers are however very well described, and to complete the description I may add, the male flowers are pedunculated, but the peduncles are shut, and they might be characterized as subsessile. The anthers, like those of the female flowers, are sessile, depressed or flattened above, and dehisce circularly. The ripe fruit is globose, and not furrowed. As I send along with this paper specimens of both the male and female flowers, any of your botanists will be able to correct me at a glance, if I be in error.

Neither Wallich, Wight, nor Griffiths appear to have been at all aware that this species produces gamboge. Dr. Wight, in a recent number of his 'Neilgherry Plants,' says, "Two species of the genus *Garcinia* are known to produce gamboge; most of the others yield a yellow juice, but not gamboge, as it will not mix with water." The species which he has described as producing gamboge, and to which I suppose he refers, are *G. gutta* or *H. cambogioides* (Graham) and *G. pictoria* (Roxburgh). That others may be enabled to judge of the character of the gamboge produced by this tree, I have the pleasure to send specimens of its exudation. In its appearance to the eye, and in its properties as a pigment, I have failed to discover the slightest difference between it and the gamboge of commerce. It serves equally well to colour drawings; the Burmese priests often use it to colour their garments, and the Karens to dye their thread. It is also used by the native doctors in medicine, but I think not extensively. Dr. Lindley, in his new work the 'Vegetable Kingdom,' says, "The best gamboge comes in the form of pipes from Siam, and this is conjectured to be the produce of *Garcinia cochinchinensis*." As *G. elliptica* is spread all over the province of Mergui, is it not probable that it extends into Siam, and that the Siamese gamboge is the produce, a part at least, of this tree?

There are several other species of *Garcinia* indigenous to the Provinces, but I know of no others producing anything resembling gamboge, except *G. Cambogia*; the exudation of which, though it will not dissolve in water, dissolves in spirits of turpentine, and forms a very beautiful yellow varnish for tin and other metallic surfaces.—*Journal of the Asiatic Society of Bengal for July* 1847.

ON THE FOSSIL VEGETATION OF ANTHRACITE COAL.

Mr. J. E. Teschemacher, at the recent meeting of the American Association of Geologists and Naturalists, read a paper on this subject, confining his observations to the remains of vegetation found in the *body* of the coal, apart from that in the accompanying shales. The principal points of the memoir were, that the remains of the larger forms of the coal epoch, as well as of the smaller plants, were abundant in the coal, contrary to the usual opinion. Specimens were exhibited from the interior of the coal, showing the external and internal parts of plants—the vessels, the leaves, the seeds, &c.

Since the meeting, Mr. Teschemacher has continued his investigations, and has communicated in a letter to one of the editors the following results:—

The foliation and female flowers are however very well described, and to complete the description I may add, the male flowers are pedunculated, but the peduncles are shut, and they might be characterized as subsessile. The anthers, like those of the female flowers, are sessile, depressed or flattened above, and dehisce circularly. The ripe fruit is globose, and not furrowed. As I send along with this paper specimens of both the male and female flowers, any of your botanists will be able to correct me at a glance, if I be in error.

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